

Water Quality Parameters Analyzed in the McKenzie Watershed

The focus of this series is on some of the water quality parameters analyzed in the McKenzie River Watershed. Anyone interested in learning more or volunteering for water quality efforts is encouraged to contact the MWC at (541)687-9076.

Temperature

Water temperature is an important factor for the survival of aquatic plants and animals. Temperature directly affects the plants and animals, but it also affects many of the physical, biological and chemical characteristics of a stream. Temperature affects:

1. the amount of oxygen that can be dissolved in the water,
2. the rate of photosynthesis by algae and other aquatic plants,
3. the metabolic rates of aquatic organisms, and
4. the sensitivity of organisms to toxic wastes, parasites, and diseases.

Colder water can hold more oxygen than warmer water because gases are more soluble in cold water. Most aquatic organisms become the temperature of the water that surrounds them. Their metabolic rates are controlled by temperature, and they are usually most efficient within a limited range of temperatures.

When temperatures are warmed, naturally or artificially, algal blooms may occur which consume oxygen thereby causing critical oxygen levels which can fish and other aquatic organisms. If temperatures are too high, or too low, the metabolic functions of the organism can die.

Causes of increased temperatures:

- Loss of shading in the riparian zone can allow temperature to increase due to sunlight directly hitting the water.
- In summer, passage through shaded sections can lead to cooling. This occurs because soils are cooler than air during much of the summer.
- Release of water from ponds or other exposed standing water sources can increase temperatures.
- Municipal wastewaters and many industrial sources can have elevated temperatures.

Student Watershed Research Project: A Manual of Field and Lab Procedures. 3rd Edition, 1996. A Saturday Academy Publication Oregon Graduate Institute of Science and Technology.